

In the Claims: Please amend the claims as follows. This listing of the claims replaces all previous listings.

1. (previously presented) An ultra-wideband method for communication between a transmitter and a receiver, the method comprising

- a first encoding step on the part of the transmitter, in which a pulse group, which is formed from a predetermined number of individual pulses in such a way that the individual pulses of said pulse group partially overlap in respect of time after the pulse forming operation, is encoded in dependence on values of a random number sequence, and

- a correlation step on the part of the receiver, in which correlation of a reception signal with a signal pattern is effected,

wherein the signal pattern corresponds to the whole pulse group to be expected when using the same values of the random number sequence.

2. (previously presented) An ultra-wideband method as set forth in claim 1, further comprising a second encoding step on the part of the transmitter prior to, during or after the first encoding step, in which at least one bit value to be transmitted as information in the pulse group is encoded in accordance with a predetermined encoding rule.

3. (previously presented) A ultra-wideband method as set forth in claim 2, wherein to ascertain the transmitted bit value in the correlation step a correlation of the reception signal with a first and with a second signal pattern to be expected is effected, wherein the first and second signal patterns are encoded with the same values of the random number sequence and the first signal pattern corresponds to a pulse group which is encoded in the second encoding step with a first bit value and the second signal pattern corresponds to a pulse group which is encoded in the second encoding step with a second complimentary bit value.

4. (previously presented) An ultra-wideband method as set forth in claim 3, wherein the correlation of the reception signal with the first and the second signal patterns is effected in parallel.

5. (previously presented) An ultra-wideband method as set forth in claim 1, wherein in the first encoding step the individual pulses are phase-modulated in dependence on the respectively current value of the random number sequence.
6. (previously presented) An ultra-wideband method as set forth in claim 1, wherein the transmitter additionally effects modulation of the spacing in respect of time of mutually successive pulse groups (first spacing modulation).
7. (previously presented) An ultra-wideband method set forth in claim 6, wherein the first spacing modulation operation is effected in such a way that the spectral energy distribution of signals emanating from the transmitter does not exceed predetermined limit values.
8. (previously presented) An ultra-wideband method as set forth in claim 2, wherein the first spacing modulation operation is effected in dependence on the random number sequence.
9. (previously presented) An ultra-wideband method as set forth in claim 1, wherein the transmitter and the receiver select the same random sequence from a number of random number sequences and the first encoding step is used at the same time for channel encoding.
10. (previously presented) An ultra-wideband method as set forth in claim 1, wherein the transmitter effects modulation of the spacing in respect of time of the individual pulses of the pulse group from each other in dependence on values of the random number sequence (second spacing modulation).
11. (previously presented) An ultra-wideband method as set forth in claim 1, wherein the transmitter and the receiver effect synchronization of the random number sequence prior to the commencement of information transmission.
12. (previously presented) An ultra-wideband method as set forth in claim 1, wherein the transmitter transmits to the receiver a training sequence of pulse groups, that is known to the receiver.

13. (previously presented) An ultra-wideband method as set forth in claim 2, wherein the predetermined encoding rule for encoding of a bit value provides for inverting or non-inverting, depending on the respective bit value, all individual pulses of a pulse group.
14. (previously presented) An ultra-wideband method as set forth in claim 1, wherein two bit values in a pulse group are transmitted, wherein a first bit value is encoded in a first predetermined number of individual pulses and a second bit value is encoded in the remaining number of individual pulses.
15. (previously presented) An ultra-wideband method as set forth in claim 14, wherein to ascertain the transmitted bit values on the part of the receiver in the correlation step, correlation of the reception signal with four signal patterns to be expected is effected.
16. (previously presented) An ultra-wideband method as set forth in claim 1, wherein a current value of a parameter which is dependent on the instantaneous transmission conditions is ascertained and the number of individual pulses of the pulse group is determined in dependence on the current value.
17. (previously presented) An ultra-wideband transmitting apparatus having a pulse group generator comprising
  - a pulse generator which is adapted to deliver individual pulses at a predetermined time spacing from each other,
  - a code generator which is adapted to deliver random signals dependent on values of a random number sequence,
  - an encoding unit which is adapted to encode an individual pulse delivered or to be delivered by the pulse generator in dependence on the current random signal, and
  - a control unit which is connected to the pulse generator and which is adapted to actuate the pulse generator at predetermined moments in time for the delivery of a pulse group with a predetermined number of encoded individual pulses at predetermined time spacings from each other, wherein
  - the control unit is additionally adapted to control the pulse generator and the encoding unit to form the coded pulse group from a predetermined plurality of single pulses in dependence on the values of the random number sequence in such a way that the single pulses of said pulse group overlap in time after the pulse formation.

18. (previously presented) An ultra-wideband transmitting apparatus as set forth in claim 17, wherein the control unit is adapted to actuate the pulse generator to effect modulation of the spacing in respect of time of successive pulse groups.
19. (previously presented) An ultra-wideband transmitting apparatus as set forth in claim 18, wherein the control unit controls the first spacing modulation in such a way that the spectral energy distribution of signals emanating from the transmitter does not exceed predetermined limit values.
20. (previously presented) An ultra-wideband transmitting apparatus as set forth in claim 18, wherein the first spacing modulation is effected in dependence on the random number sequence.
21. (previously presented) An ultra-wideband transmitting apparatus as set forth in claim 17, wherein the control unit is adapted to select the random number sequence whose values form the basis for the outputted random signals of the code generator.
22. (previously presented) An ultra-wideband transmitting apparatus as set forth in claim 17, wherein the control unit is adapted to actuate the pulse generator for modulation of the time spacing of the individual pulses of the signal pulse group from each other in dependence on values of the random number sequence.
23. (currently amended) An ultra-wideband receiving apparatus having a pulse group generator, the pulse group generator comprising
  - a pulse generator which is adapted to deliver individual pulses at a predetermined time spacing from each other,
  - a code generator which is adapted to deliver random signals dependent on the values of a random number sequence,
  - a first encoding unit which is adapted to encode an individual pulse delivered or to be delivered by the pulse generator in dependence on the current random signal, and
  - a control unit which is connected to the pulse generator and which is adapted to actuate the pulse generator at predetermined moments in time for the delivery of

at least one signal pattern in the form of a pulse group with a predetermined number of encoded individual pulses at predetermined time spacings from each other, the ultra-wideband receiving apparatus further having a correlation unit, which is connected to the pulse group generator and adapted to deliver an output signal dependent on the correlation of a reception signal with the signal pattern, wherein the control unit is additionally adapted to control the pulse generator and the first encoding unit to form the coded pulse group from a predetermined plurality of single pulses in dependence on the values of the random number sequence in such a way that the single pulses of one and the same pulse group overlap in time after the pulse formation.

24. (previously presented) An ultra-wideband receiving apparatus as set forth in claim 23, wherein the correlation unit has a temporary memory for the signal pattern.

25. (previously presented) An ultra-wideband receiving apparatus as set forth in claim 23, wherein the pulse group generator has a filter device which is adapted to modify the pulse group in accordance with a predetermined filter characteristic.

26. (previously presented) An ultra-wideband receiving apparatus as set forth in claim 23, wherein the pulse group generator has a second encoding unit which is adapted to encode at least one bit value in the pulse group in accordance with a predetermined encoding rule.

27. (previously presented) An ultra-wideband receiving apparatus as set forth in claim 23, wherein the second encoding unit is adapted to additionally encode in a copy of the pulse group the complementary bit value corresponding to the predetermined encoding rule and in which the pulse group generator outputs a first and a second signal pattern with complementary bit values.

28. (previously presented) An ultra-wideband receiving apparatus as set forth in claim 23, wherein the correlation unit has two correlators of which a first ascertains a correlation of the reception signal with the first signal pattern and the second ascertains a correlation of the reception signal with the second signal pattern.

29. (previously presented) An ultra-wideband transmitting-receiving apparatus comprising an ultra-wideband transmitting apparatus as set forth in claim 17, and an ultra-wideband receiving apparatus having a pulse group generator comprising

- a pulse generator which is adapted to deliver individual pulses at a predetermined time spacing from each other,
- a code generator which is adapted to deliver random signals dependent on the values of a random number sequence,
- a first encoding unit which is adapted to encode an individual pulse delivered or to be delivered by the pulse generator in dependence on the current random signal, and
- a control unit which is connected to the pulse generator and which is adapted to actuate the pulse generator at predetermined moments in time for the delivery of at least one signal pattern in the form of a pulse group with a predetermined number of encoded individual pulses at predetermined time spacings from each other, and with a correlation unit which is connected to the pulse group generator and adapted to deliver an output signal dependent on the correlation of a reception signal with the signal pattern.

30. (canceled)